Space Weather Forecast

Issued on Friday, 05 July 2024 at 01:16 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate-class X-ray flares throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate, with two M-class flares in the past 24 hours, both from an active region which is no longer visible due to its proximity to the western limb.

There are currently nine sunspot regions on the facing side, and perhaps signs of an arriving tenth over the southwestern limb in extreme UV. Perhaps foremost amongst the current regions has been one in the northwest, with its overall size increasing in the 24 hours.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in imagery during the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds were at background throughout, the IMF was largely weak to moderate with the important north-south component also varying moderately throughout the period.

The net result of the above solar wind measures was for Quiet to Unsettled (Kp 0-3) geomagnetic indices

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a flat daily chance of further isolated Moderate-class flares, perhaps most likely from the growing sunspot mentioned in the Solar Activity section. Upcoming sunspot region arrivals over the eastern solar horizon in the period should help compensate for western horizon losses.

Solar Wind / Geomagnetic Activity: No CMEs feature in the forecast.

Geomagnetic activity is expected to persist as Quiet to Unsettled (Kp0-3) through the next four days, with the greatest chance of departure from this being over the UTC weekend, with a Slight Chance of isolated Active (Kp4) intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected, with a daily Slight Chance of Minor Solar Radiation Storm S1 or greater given the presence of several regions near the (better-connecting) western solar horizon.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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